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Highlights from
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Managing hepatitis
in primary care

Antiviral

Antiviral

Antiviral

Steroid

COVID-19
treatments:
The old, the new,
and the upcoming

AI systems mining big data to make big impact in healthcare

JAIRIA DELA CRUZ

Healthcare is amassing bigger and richer data, and analytics and artificial intelligence (AI) are stepping in to make the most of them with the goal of improving patient care.

Lots of innovation has been happening in healthcare, which is everything from better nutrition to improved sleeping to less invasive cardiac surgery, and Verily CEO Ashraf Hanna believes that there is still more to come.

"I think the area where [technology] can help really make a big difference is tying those [innovations] together and also being able to tie our behaviours and our interventions to outcomes—to be able to monitor people long enough and in unobtrusive ways, to know that using [one] parameter for treatment of a disease has a better long-term or medium-term impact than using another parameter," Hanna says.

All these things are very difficult to do today, he acknowledges, but the right sensors with an ability to handle the data could allow us to do those in the very near future.

Rising to the challenge

Hanna is optimistic about the future of digital health and big data. He cites a couple of places where it could be useful, one of which is improving data availability and avoiding test repetition.

"It's a lot of waste if you go to hospital A to do something and you go to hospital B to do something else, and they repeat a lot of the tests or programmes," he says. "Whether you're in France or Singapore or California, your doctor [should be able to] get access to [your data] in a timely way and have a better picture of what's happening in a crisis."

> *"I think the area where [technology] can help really make a big difference is tying those [innovations] together and also being able to tie our behaviours and our interventions to outcomes" – Ashraf Hanna*

The second is monitoring data and using it to flag irregularities. Hanna mentions a patch that monitors glucose continuously and sends alerts if blood sugar gets too low so patients can avoid getting rushed to the emergency department or some kind of diabetic coma, but equally important is so they can manage their health better.

Pattern recognition or diagnosis is where data use in healthcare can be brought to a whole new level. This is the third and most advanced, Hanna notes. "You start to diagnose patterns, and you can start to see behaviours and use that potentially to predict [outcomes]."

In reading retinal scans, for example, he describes an experiment they conducted, where a panel of seven leading experts in the US were given a set of images to rate from zero (no disease) to five (severe disease) and had to agree on what the rating was. "It's kind of like a supreme court."

Interestingly, individual physicians agreed with the panel about 60 percent of the time, while the AI, about 96 percent of the time. So in this case, using an AI translates to "getting the benefit of the seven leading experts in the field. It's not just cheaper and faster, it's also just higher quality," he explains.

For Hanna, an algorithm's capabilities can even surpass that of a seasoned doctor. This is because even experts are prone to making errors as a result of "a car accident on the way to work" or "an argument with a spouse." Things like these do not affect the performance of AI.

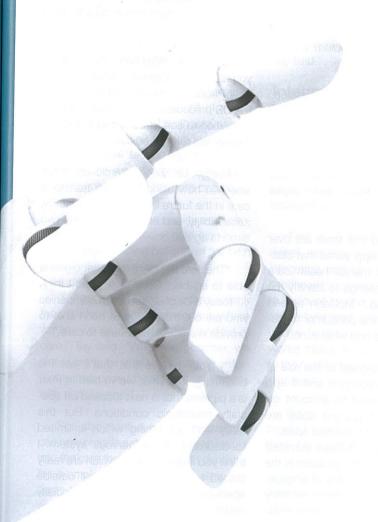"But I see those kinds of complexities, [such as access, consistency of knowledge, and cost] increasing over time to eventually get to the diagnosis and where we feel more comfortable with the AI making that decision for us," he admits.

Expectations post–COVID-19

We've seen lots of those trends in digital health accelerate recently, Hanna observes.

"In terms of access, people are much more comfortable accessing their healthcare provider and having discussions virtually. So that's been a really important aspect," he says. "In terms of standardizing care, there's just been a lot more information on what works the best, what aspects to try, and which drugs and which clinical trials."

> *"The digital aspects [of AI] are fantastic. I hope they allow us to share our humanity more broadly" – Ashraf Hanna*

Seeing people come together and support each other is what gives Hanna optimism. Companies and governments are working together to solve the unique problem that the pandemic has created. People go into very dangerous situations, where they could get infected. Others work 30 days in a row without taking a break to build the systems to bolster healthcare response.

"I would hope those areas all stick post-COVID crisis, that we can do a lot more of that together," he says. "The digital aspects [of AI] are fantastic. I hope they allow us to share our humanity more broadly."

Software as medicine? Need for digital therapeutics emerges amid pandemic

STEPHEN PADILLA

The coronavirus disease (COVID-19) pandemic appears to have quickened the acceptance of prescription digital therapeutics (PDT), or software that helps treat human disease, by clinicians and patients, particularly those suffering from mental health conditions, according to experts from one of the sessions at APACMed Virtual 2020.

Ken Cahill, CEO and co-founder of digital mental health platform SilverCloud Health, said that the past 6 months have moved PDT forward from an "if" to a "when" sort of situation.

"As a result of COVID-19, things like stigma have been reduced lower and we're seeing more people utilize terms like anxiety," Cahill said, noting how the pandemic has made treatment "very difficult" but at the same time helped PDT for mental health to "move forward."

This sentiment was supported by Corey McCann, president and CEO of Pear Therapeutics, a pioneer in PDT and the first company to receive market authorization for software to treat disease.

"The COVID-19 crisis has certainly accelerated the need," McCann said. "I think that you would have to really bury your head in the sand to not acknowledge the way in which COVID has limited access to care for many of the patients who are affected with mental health conditions."

He also believed that the current crisis has significantly exacerbated many mental health conditions directly, particularly in the US where one can see a "month on month" increase in overdose statistics, which is "absolutely sobering and staggering."

"Make no mistake," McCann said. "I

think they didn't see the data and immediately think digital, but I think that they knew they had a problem and … that they thought there was an opportunity to address that problem with all things that are digital."

Acting as moderator of the session, Bronwyn Le Grice, CEO and founder of ANDHealth, Australia's only dedicated digital health accelerator and commercialization support organization, asked the two experts about the difference between genuine PDT and "digital snake oil."

Cahill mentioned that there are over 10,000 apps within app stores that classify themselves as mental health care and that it is a "challenge to identify the good from the bad." McCann agreed that it is difficult for the consumer to discern what is reliable and what is not.

Le Grice then segued to the role of regulations in this scenario and if app stores should be held to account on making sure that regulated apps are differentiated from unregulated apps.

"It's a hot topic," McCaan admitted before elaborating on the situation in the US, wherein fairly clear rules of engagement state that "if one wants to explicitly treat disease or make explicit these treat-

ment claims, [then] those are imminently regulatable events," and which he further likened to the drugs versus supplements dichotomy.

"[F]rom a regulatory perspective, you're seeing different countries in the Asia Pacific region really follow suit with the US precedent and put themselves in a position to sort of be ahead of the European regulators," he said.

Finally, Le Grice mentioned three ways on how using PDT can transform care in the future in terms of affordability, accessibility, and efficacy, which the two experts agreed on.

"They are the key things that digital is able to enable," Cahill said. "And I think … today a lot of digital health companies who are out there … have been able to provide easier, earlier access to care."

"I firmly believe that that's just the beginning, and what we've built in Pear is a pipeline that is next focused on specialty neurologic conditions. But this really isn't something which is limited to disorders of the nervous system. I think you'll see drugs … which are really poised to treat conditions well outside specialty psych, well outside specialty neuro," said McCann.

Digital technology paves way for better access to healthcare

TRISTAN MANALAC

Digital technology is key in improving access to healthcare. This was the key message in one of the breakout sessions during the recently concluded APACMed Virtual 2020. Especially under lockdowns due to the coronavirus pandemic, digital health allows providers to continuously deliver services to their patients.

Chang Liu, managing director of Access Health International; Elisabeth Staudinger, president of Siemens Healthineers Asia-Pacific; and Julie Tay, senior vice president and managing director of Align Technology, Asia-Pacific, participated in the session. It was moderated by Bruno Occhipinti, founder and lead consultant of CrestaLab.

According to Liu, while access to health is most readily thought of as the timeliness of delivery, healthcare providers should also think about how they can leverage digital technology to improve coverage as well, boosting affordability and medical security for more people.

On top of that, the quality and standard of care delivered should also be of high quality, assuring patients of the best possible health outcomes.

"When we talk about access, I think there's also another component where we say we want to raise the standard of care," Tay said. "Wherever possible, we also want to be able to prevent an unfortunate outcome. I think that's all possible with digitalization."

She also pointed out that innovations can now provide patients with deep insight into the care that they receive. In dentistry, for example, new technologies allow patients to see the impacts of a procedure, on a 2D or 3D visualization of their face.

"I think things like that will allow very good conversations that a patient can have on how the patient is being treated, what the consumer is paying for. That's critical in raising the standard of care," Tay said.

Integration, inclusivity, impact

While digital health holds such great potential, Liu pointed out that there are a few crucial considerations that innovators and healthcare providers need to be aware of before deploying novel technologies.

First is to check whether the new digital solution synchronizes with and integrates well into the current existing healthcare system. Many products fail to account for this and instead become standalone and separate parts of the overall healthcare process, he said. In worse cases, they may even contribute to the further fragmentation of the healthcare system.

Second, introduced technologies need to truly be inclusive with respect to the most vulnerable groups.

"There is certainly financial disparity, but unfortunately there is also technology disparity. And a lot of times, people

with lower socioeconomic status also have barriers to access to technology," Liu explained. In deploying technological health solutions, providers also need to think about overcoming these barriers.

Finally, developers need to determine what the real value of these digital health solutions are. Will they help substantially improve clinical outcomes? Or are they designed to reduce overall healthcare spending? This value proposition will not only help it fit better into the healthcare structure, but also help make a solid business case for the developer and justify the costs of the new technology.

Promise and peril

Staudinger agrees that a strong business case is essential, but adds that this is also something that companies, technology developers, and healthcare providers should think about from an ethical and regulatory point of view, particularly in solutions that are consumer-facing.

To illustrate, she presented a hypothetical scenario: If, for example, an online platform offered free medical consultations, "then the business model [would be] reliant on making money depending on what happens after the consultation."

There may be undue incentive to guide patients to avail of specific drugs, medications, devices, or services online, which in turn could be funding the free service, raising important ethical concerns.

Digital technologies have the potential to "allow countries here in Asia to really leapfrog when it comes to digital health and providing access to health," Staudinger said, noting that "there will be a certain minimum requirement of frameworks and regulations around it to make sure that we really deliver the quality that people deserve."

Healthcare gone remote in COVID-19 era

JAIRIA DELA CRUZ

From a typical brick-and-mortar environment to the application of digital and data technologies to engage patients at a safe distance, the pandemic has facilitated a shift in the delivery of healthcare.

During a panel discussion on remote patient monitoring (RPM), speakers at the APACMed virtual forum spoke of modern digital healthcare solutions, how they have enhanced patient care, and their role in the pandemic response.

"The reason remote monitoring first came about was the movement to try to bring healthcare out of the hospital and into the home, what with hospitals in mature markets being high-cost healthcare settings particularly for chronic disease patients," according to Justin Leong, president of ResMed's Asia & Latin America markets.

Aside from costly hospital visits, tracking patients' health in their homes through remote monitoring-type equipment certainly has other merits.

For Dr Ravinder Singh Sachdev, deputy chief medical informatics officer at Tan Tock Seng Hospital in Singapore, RPM has somehow transformed the practice of obtaining patient data for the better.

"These days we've got dedicated platforms, all-in-one devices, increased array of sensors, and integration of this data with electronic medical documentation—these new processes have been able to make it easier for clinicians to monitor patients, but more importantly, it made it easier for patients to share their information with providers," Sachdev said.

COVID-19 response

RPM has been around for years, but its uptake has been limited until now. Considering the problems caused by the pandemic—burdened hospitals and the increased risk of exposure to infection during face-to-face appointments—remote or virtual care became an important part of the COVID-19 response, which has been twofold: to deliver nonemergency care and to safely treat and monitor hospitalized patients.

"We've seen a huge number of health systems automatically switch to outpatient virtual care settings," noted Farhana Nakhooda, senior vice president of Healthcare and Life Sciences, Asia Pacific, at Health Catalyst.

As an example, Nakhooda shared the experience of one of their clients from the US. "Virtual care is 80 percent of all their visits, and this was an organization that didn't even have a telehealth platform before COVID-19. They had to one-up very fast. [Now] they're getting about 40,000 visits in a month."

Individuals with chronic diseases, such as young asthmatics, middle-aged diabetics, and elderly patients with cardiac failure, are some of the many patient populations who stand to gain most from remote monitoring solutions in the current healthcare climate, according to Sachdev.

"They can contribute data regularly to an RPM platform which clinicians can then look at and use to follow-up … and intervene at the right time. This, in fact, is what gives you that continuity of care, which was previously only episodic," he explained.

Abishek Shah, CEO of digital solutions company Wellthy Therapeutics, agreed by saying that the combination of the digital therapeutic stack working alongside paramedicals and physicians ensures that real-world outcomes are improved.

In a respiratory condition such as asthma, for instance, the combination of a cloud-connected cap on an inhaler, GPS coordinates of a patient because of their mobile phone, geofenced weather/environment data, and a known patient trigger history will "allow you to focus on not just monitoring the patient but really understand a lot more about the environment [that is potentially] causing attacks or triggers," Shah pointed out.

Moreover, with the help of the prediction algorithms that are already there, the "system can give tips … to improve symptom-free days and reduce risk of hospitalization," he added.

Leong chimed in, saying that the data generated from connected medical devices, when analysed and applied an artificial intelligence (AI) and algorithm, can show trends in the patients' clinical symptoms and alert doctors early on things are about to go wrong. It's not just about treatment compliance anymore, but more about personalizing the therapy (eg, make a change, alter the dose) to achieve the best outcomes possible.

RPM within the hospital can be useful as well, Leong continued. It is not easy for doctors to monitor every patient over time. "But with the ventilator that's sending data on a regular basis into the hospital system," the job gets easier.

As a physician himself, Sachdev confirmed that remote monitoring "doesn't necessarily mean that the patient and provider are separated by huge distances, especially [in the case of] COVID-19.

"The application of remote monitoring technology has allowed us to be able to [keep an eye on] many of our patients in isolation, even though they are just maybe 3–5 meters away from us, without putting our clinicians at risk," he said.

Leapfrogging

Leong identified an opportunity to further expand telehealth in China, where healthcare is centred around the hospital. "There is no home care system, so everything is in the hospital. If you get a cold or a minor illness, you go to the hospital. And if you're a chronic disease patient, you get treated in the hospital."

But the fact that China is a very entrepreneurial place and highly adoptive of digital technology, he noted that already, quite a number of digital health companies have started providing "Internet hospitals," which are basically telehealth.

"Helping the government digitize the hospital system is the next evolution of digital health in China and could be really powerful as the hospital system suddenly becomes modernized… I think that's probably the major sort of public private partnership that will happen over the next decade," Leong said.

In addition to the coming together of the healthcare ecosystem, Nakhooda believes that the future will move toward a more value driven perspective on care.

"[We are] finding ways and opportunities to shift to risk-based payment models, to incentivize the use of telehealth, especially for chronic patients," she said. "Ultimately when payers and providers come together, no matter how tricky," the biggest winner will be the patient.

Meanwhile, in India, lots of interesting things are going on, especially in digital health. Shah noted that the country has set its sights on delivering universal healthcare coverage, building a digital health facility registry, and e-pharmacy, among others. And this is going to play an important role in reducing the burden of noncommunicable diseases and improving access to care.

In Sachdev's view, a three-way partnership between patients, provider, and AI is needed to truly take a care delivery to the next level.

"We need robust AI-driven analytics to give us more feedback so we understand, 'is this a glitch' or 'is this actually an abnormality,' and then that data is synthesized and sent appropriately to the provider to actually manage their patients better," he said.

In closing, session moderator Siddharta Bhattacharya, secretary general of NATHEALTH - Healthcare Federation of India, said that all the insights have really been a crystal gaze into the future.

"Many countries have toyed around with digital system, which is a physical and digital system together, but digital actually may open up entirely new care pathways, possibilities which are very exciting. And what we're going through, there may actually be a silver lining out of this," Bhattacharya stated.

Virtual care makes convincing case during pandemic

STEPHEN PADILLA

The novel coronavirus disease (COVID-19) pandemic has created a shift in the conduct of healthcare, particularly in the use of digital technology in enabling virtual experiences for both physicians and patients, as suggested by experts in the recently concluded APACMed Virtual 2020.

Prior to the pandemic, the virtual care industry had been on the fringes of healthcare, according to Joe DeVivo, president of hospitals and health systems at Teladoc Health, a multinational telemedicine and virtual healthcare company based in the US.

"What we've done [at Teladoc] is develop novel use cases … within the existing environment, within the existing reimbursement paradigm, within the regulatory paradigm," DeVivo said, noting how the recent pandemic has created awareness that virtual is possible.

"[V]irtual [care] is actually not something as a bridge to not being able to do consultation in person but is actually, in many situations, preferred for those who were inconvenienced to come into the office or those who needed immediate and urgent consultation," he further explained.

The current situation has also shown that telehealth should be part of everyday healthcare. DeVivo stressed how telemedicine is getting a significant level of adoption as well as global dialogue around how and when to make such an approach permanent.

This was supported by Andrew Fyre, senior vice president and president for Asia Pacific at Baxter Healthcare, a multinational healthcare company focusing on products to treat haemophilia, kidney disease, immune disorders, and other

chronic and acute medical conditions.

"When we see the opportunities for virtual health or home health, it really changes the way people can live," he said.

In the case of dialysis in which Baxter specializes, Fyre shared that the use of software to monitor patients at home revealed how millions of bytes of data that could be gleamed from this treatment would be useful for physicians to improve care.

Virtual care has allowed healthcare professionals to see data every day, increasing confidence for both patients and caregivers, knowing that that data is being shared with the attending physician.

"I really feel like virtual health or remote care is [going to] be a key element of telehealth or virtual health," Fyre said.

Amkidit Afable, vice president of strategy and innovation at Zuellig Pharma, complemented the discussion by mentioning three elements that are critical for virtual care to succeed, namely, accessibility, seamlessness, and security.

"It's more than just a virtual conversation," he said. "Because essentially if I'm a patient today, I don't want to talk

to five, 10, 15 people to manage my care or go through 15 apps. I just want one central nervous system that connects me to the right services, whether it's a [consultation], a prescription that needs to be delivered to home, [or] a diagnostic that I need to do, in one simple manner."

On the other hand, DeVivo clarified that "video conferencing is not telemedicine or telehealth," pointing out an entire workflow that involves medical grade requirements, security, data management, and privacy, among others.

Glenn Snyder, segment leader for medical technology practice at Deloitte Consulting, who acted as moderator of the discussion, asked the significance of government policy in the conduct of virtual care.

Fyre answered in the affirmative, stressing how policies could support virtual care, including predictive analytics and digital innovation.

"[P]hysicians get paid to see patients in their office now," he said. "If they spend all their time on an electronic environment, will that qualify? That has to be addressed … [and also] how the providers are compensated for their time and their efforts."

Green tea, coffee may be good for T2D

High consumption of green tea and coffee may help reduce all-cause mortality in patients with type 2 diabetes (T2D), a new study finds.

Individuals who drank more than one cup of green tea or coffee per day had lower odds of dying from any cause compared with those who drank neither. Drinking both beverages each day produced the largest effects.

Four or more cups of green tea and two or more cups of coffee significantly reduced all-cause mortality risk by 63 percent over a median follow-up period of 5.3 years, said researchers from Japan.

As for coffee intake alone, two or more cups per day was associated with 41 percent lower risk of dying. Among green tea-drinkers, four or more cups per day was associated with 40 percent lower risk of dying.

The researchers analysed data from 4,923 individuals aged 20 years or older with T2D who were listed in the

Fukuoka Diabetes Registry. During follow-up, 309 people died.

As the study was observational, it is not possible to prove cause and effect relationship. However, the results did add to a plethora of evidence that green tea and coffee might benefit certain individuals in some ways.

Komorita Y et al. Additive effects of green tea and coffee on all-cause mortality in patients with type 2 diabetes mellitus: the Fukuoka Diabetes Registry. BMJ Open Diabetes Res Care 2020; 8:e001252.

Got coeliac disease? Probiotics may help

Probiotics intake may help improve gastrointestinal symptoms in patients with coeliac disease (CD), a meta-analysis has shown.

Researchers searched databases (Embase, Medline, Cinahl, Web of Science, Central and Dare) and looked at randomized controlled trials (RCTs) of probiotics vs placebo for CD. Six RCTs with a total of 5,279 participants met the eligibility criteria for a quantitative analysis.

Probiotics improved GI symptoms (mean difference symptom reduction, 228.7 percent; p=0.0002) as assessed on the GI Symptoms Rating Scale. There was no difference in GI symptoms after probiotics intake when different questionnaires were pooled.

Probiotics also increased Bifidobacteria levels (mean difference, 0.85 log colony-forming units [CFU] per gram; p=0.0003). There was also no difference in adverse events between probiotics and placebo.

The authors said high-quality clinical trials are needed to improve the certainty in the evidence.

Seiler C, et l. Probiotics for Celiac Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Am J Gastroenterol 2020;115:1584-1595.